SANTA CRUZ BIOTECHNOLOGY, INC.

HYLS1 siRNA (h): sc-96710

BACKGROUND

The hydrolethalus syndrome protein 1 (HYLS1) is a widely conserved protein that plays an essential role in cilia formation. A single amino acid mutation in th HYLS1 gene leads to a perinatal lethal disorder termed hydrolethalus syndrome, a severe fetal malformation syndrome characterized by central nervous system (CNS) malformation such as hydrocephaly and absent midline structures of the brain, micrognathia, defective lobation of the lungs and polydactyly. The gene encoding HYLS1 maps to human chromosome 11, which makes up around 4% of human genomic DNA and is considered a gene and disease association dense chromosome. The chromosome 11 encoded Atm gene is important for regulation of cell cycle arrest and apoptosis following double strand DNA breaks. Atm mutation leads to the disorder known as ataxia-telangiectasia.

REFERENCES

1. Grossfeld, P.D., et al. 2004. The 11q terminal deletion disorder: a prospective study of 110 cases. Am. J. Med. Genet. A 129A: 51-61.
2. Mee, L., et al. 2005. Hydrolethalus syndrome is caused by a missense mutation in a novel gene HYLS1. Hum. Mol. Genet. 14: 1475-1488.
3. Taylor, T.D., et al. 2006. Human chromosome 11 DNA sequence and analysis including novel gene identification. Nature 440: 497-500.
4. Lee, S.P., et al. 2007. Phase I study of eptifibatide in patients with sickle cell anaemia. Br. J. Haematol. 139: 612-620.
5. Lee, J.H., Paull, T.T. 2007. Activation and regulation of ATM kinase activity in response to DNA double-strand breaks. Oncogene 26: 7741-7748.
6. Paetau, A., et al. 2008. Hydrolethalus syndrome: neuropathology of 21 cases confirmed by HYLS1 gene mutation analysis. J. Neuropathol. Exp. Neurol. 67 750-762.
7. Kaste, S.C., et al. 2008. Wilms tumour: prognostic factors, staging, therapy and late effects. Pediatr Radiol. 38: 2-17.
8. Dammermann, A., et al. 2009. The hydrolethalus syndrome protein HYLS-1 links core centriole structure to cilia formation. Genes Dev. 23: 2046-2059.

CHROMOSOMAL LOCATION

Genetic locus: HYLS1 (human) mapping to 11q24.2.

PRODUCT

HYLS1 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see HYLS1 shRNA Plasmid (h): sc-96710-SH and HYLS1 shRNA (h) Lentiviral Particles: sc-96710-V as alternate gene silencing products.

For independent verification of HYLS1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-96710A, sc-96710B and sc-96710C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

HYLS1 siRNA (h) is recommended for the inhibition of HYLS1 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

HYLS1 (F-12): sc-393492 is recommended as a control antibody for monitoring of HYLS1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor HYLS1 gene expression knockdown using RT-PCR Primer: HYLS1 (h)-PR: sc-96710-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.